

Use of MODIS Satellite Data to Evaluate *Juniperus* spp. Pollen Phenology to Support a Pollen Dispersal Model, PREAM, to Support Public Health Allergy Alerts

J. C. Luvall^{a*}, W. A. Sprigg^b, E. Levetin^c, A. Huete^d, S. Nickovic^b, A. Prasad^f, G. A. Pejanovic^b, A. Vukovic^f, P. K. Van de Water^g, A. M. Budge^h, W. Hudspeth^h, H. Krapflⁱ, B. Tothⁱ, A. P. Zelicoff^j, O. B. Myers^h, L. Bunderson^c, G. Ponce-Campos^b, T. M. Crimmins^l, M. Menache^h, M. Vujadinovic^f

^aNASA Marshall Space Flight Center Huntsville, AL 35812 - jluvall@nasa.gov

^bUniversity of Arizona, Tucson, AZ 85721- wsprigg@email.arizona.edu

^cUniversity of Tulsa, Tulsa, OK 74104 - estelle-levetin@utulsa.edu

^dUniversity of Technology, Sydney, Australia, NSW - Alfredo.Huete@uts.edu.au

^eChapman University, Orange, CA

^fFaculty of Agriculture, University of Belgrade, Serbia, anavuk@agrif.bg.ac.rs, mirjam0804@yahoo.com

^gCalifornia State University, Fresno, Fresno, CA 93740 - pvandewater@csufresno.edu

^hUniversity of New Mexico, Albuquerque, NM 87131 - abudge@edac.unm.edu; bhudspeth@edac.unm.edu;

ⁱNew Mexico Department of Health, Albuquerque, NM,

^jEpidemiology and Occupational and Environmental Health, Institute for Biosecurity, Salas Center St. Louis ^kUniversity, St. Louis, MO 63104 & ARES Corporation, Albuquerque, NM - zalan8587@q.com

^lUSA National Phenology Network, Tucson, AZ 85721 - theresam@u.arizona.edu

Abstract - Pollen can be transported great distances. Van de Water et. al., 2003 reported *Juniperus spp.* pollen was transported 200-600 km. Hence local observations of plant phenology may not be consistent with the timing and source of pollen collected by pollen sampling instruments. The DREAM (Dust REgional Atmospheric Model, Nickovic et al. 2001) is a verified model for atmospheric dust transport modeling using MODIS data products to identify source regions and concentrations of dust. We are modifying the DREAM model to incorporate pollen transport. Pollen emission is based on MODIS-derived phenology of *Juniperus spp.* communities. Ground-based observational records of pollen release timing and quantities will be used as model verification. This information will be used to support the Centers for Disease Control and Prevention's National Environmental Public Health Tracking Program and the State of New Mexico environmental public health decision support for asthma and allergies alerts